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SEP 20 2016

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555


Serial No.	16-348
MPS Lic/TGC	R0
Docket No.	50-336
License No.	DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
LICENSEE EVENT REPORT 2016-002-00
MANUAL REACTOR TRIP DUE TO LOSS OF
TWO CIRCULATING WATER PUMPS

This letter forwards Licensee Event Report (LER) 2016-002-00 documenting an event at Millstone Power Station Unit 2, on August 11, 2016. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

If you have any questions or require additional information, please contact Mr. Jeffry A. Langan at (860) 444-5544.

Sincerely,


John R. Daugherty
Site Vice President – Millstone

Attachments: 1

Commitments made in this letter: None

TE22
NRR

cc: U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd.
Suite 100
King of Prussia, PA 19406-2713

R.V. Guzman
NRC Senior Project Manager Millstone Units 2 and 3
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 08 C-2
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

ATTACHMENT

LICENSEE EVENT REPORT 2016-002-00
MANUAL REACTOR TRIP DUE TO LOSS OF TWO CIRCULATING WATER PUMPS

**MILLSTONE POWER STATION UNIT 2
DOMINION NUCLEAR CONNECTICUT, INC.**



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Millstone Power Station Unit 2

2. DOCKET NUMBER

05000336

3. PAGE

1 OF 3

4. TITLE

Manual Reactor Trip Due to Loss of Two Circulating Water Pumps

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	11	2016	2016	002	00	09	20	2016	FACILITY NAME	DOCKET NUMBER
										050000
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
1			<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
			<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL 100			<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
			<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)	
			<input type="checkbox"/> 20.2203(a)(2)(vi)		<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)	
					<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Jeffrey A Langan, Manager Nuclear Station Licensing

TELEPHONE NUMBER (Include Area Code)

(860) 444-5544

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	EE	UJX	Eaton	N					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO15. EXPECTED
SUBMISSION
DATE

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On August 11, 2016 at 09:59 while operating in MODE 1 at 100% power, operators manually tripped the Millstone Power Station Unit 2 reactor due to degraded condenser vacuum caused by the loss of two out of four circulating water pumps (CWPs) ('A' and 'C' CWPs). The reactor trip was uncomplicated and decay heat removal was via the steam dumps to the condenser. All control rods inserted on the reactor trip. All safety systems functioned as required.

The 'A' and 'C' CWPs stopped due to a loss of normal control power in the associated variable frequency drive (VFD) system. Both backup uninterruptible power supplies (UPS) in the VFDs associated with the 'A' and 'C' CWPs failed to function resulting in the 'A' and 'C' CWPs stopping. This coincided with a grid disturbance that occurred during a storm. The loss of two out of four CWPs caused a reduction in condenser vacuum. The operators manually tripped the reactor due to degrading condenser vacuum.

The associated UPSs were replaced.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Millstone Power Station Unit	05000336	YEAR	SEQUENTIAL NUMBER	REV NO.	2 of 3
		2016	– 002	– 00	

1. EVENT DESCRIPTION:

On August 11, 2016 at 09:59 while operating in MODE 1 at 100% power, operators manually tripped the Millstone Power Station Unit 2 reactor due to degraded condenser vacuum caused by the loss of two out of four circulating water pumps (CWPs) ('A' and 'C' CWPs). The reactor trip was uncomplicated and decay heat removal was via the steam dumps to the condenser. All control rods inserted on the reactor trip. All safety systems functioned as required.

Following the reactor trip, main feedwater continued to be available. The main feedwater regulating valves closed as expected and the main feedwater regulating bypass valves opened as designed. Steam generator level was restored to the desired post trip band using main feedwater.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

2. CAUSE:

The 'A' and 'C' CWPs stopped due to a loss of normal control power in the associated variable frequency drive (VFD) system. This coincided with a grid disturbance that occurred during a storm. A design feature of the VFD is to swap to a battery back-up redundant uninterruptible power supply (UPS) in the associated VFD system when power is lost or becomes unreliable. Both backup UPSs associated with the 'A' and 'C' CWPs failed to function resulting in the 'A' and 'C' CWPs stopping. The loss of two out of four CWPs caused a reduction in condenser vacuum. The operators manually tripped the reactor due to degrading condenser vacuum.

3. ASSESSMENT OF SAFETY CONSEQUENCES:

The operating crew responded to the reactor trip by completing EOP 2525, Standard Post Trip Actions, and entering EOP 2526 Reactor Trip Recovery. All control rods inserted on the reactor trip. With the 'B' and 'D' CWPs still running, condenser vacuum remained adequate for operation of the condenser dump valves following the reactor trip. Steam generator level was restored to the desired post trip band using main feedwater. No safety functions were challenged and plant operation was maintained within the bounds of the FSAR Chapter 14 Safety Analysis. Based on the above discussion, there were no safety consequences for the event.

4. CORRECTIVE ACTION:

The associated UPSs were replaced. Additional corrective actions are being taken in accordance with the station's corrective action program.

5. PREVIOUS OCCURRENCES:

LER 2013-004-00 Reactor Trip While Backwashing D Waterbox describes a reactor trip due to loss of condenser vacuum. There are no previous occurrences with the same underlying reason or consequences.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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6. ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES:

- Feedwater System – JB
- Pump – P
- Steam Generator- SG
- Circulating Water System - SG
- Circulating Water Pump –SG, P
- Main Condenser – COND
- Uninterruptible Power Supply – EE